CLAIMS

1) A method of transferring blanks, on a packing machine, from a platform (16) supporting a number of blanks (2) divided into stacks (5), to a store (10) where the blanks (2) are packed successively and seamlessly along a first supply path (P1) of a pickup station (S1) of the packing machine; the method being characterized by forming, at a loading station (S3) and by means of at least one gripping device (14, 15), a group (13) of blanks defined by at least two stacks (5) superimposed and aligned in a container (12); feeding the container (12) along a second path (P2) to an unloading station (S2) at the store (10); and transferring the group (13) of blanks from the container (12) to the store (10).

2) A method as claimed in Claim 1, wherein the blanks (2) in said store (10) and in said container (12) at the unloading station (S2) extend perpendicularly to a first direction (D1), and the blanks (2) on said platform (16) and in said container (12) at the loading station (S3) extend perpendicularly to a second direction (D2) crosswise to the first direction (D1); the method providing for guiding the travel of said container (12) to alter the orientation of the container (12) and of the group (13) of blanks during transfer along said second path (P2).

3) A method as claimed in Claim 2, wherein said second path (P2) comprises a first portion parallel to

the first direction (D1), and a second portion parallel to said second direction (D2).

4) A method as claimed in Claim 3, wherein said loading station (S3) is located along said second portion, and said unloading station (S2) is located along said first portion.

5) A method as claimed in Claim 4, wherein the first and second path (P1, P2) overlap along a portion (T) parallel to said first direction (D1); said unloading station (S2) being located along said portion (T).

6) A method as claimed in Claim 1, wherein the position of the blanks (2) in each stack (5) with respect to a reference system is determined by means of a transfer member (68) of the gripping device (15) as said transfer member (68) is transferred from the platform (16) to said loading station (S3).

7) A method as claimed in Claim 6, wherein the reference system is located on said transfer member (68) and comprises walls (71).

8) A method as claimed in Claim 6, wherein the blanks (2) of stacks (5) having misaligned blanks (2) are aligned by means of said transfer member (68).

9) A method as claimed in Claim 6, wherein the stacks (5) whose blanks (2) are not aligned are rejected by said gripping device (15).

10) A method as claimed in Claim 1, wherein the blanks (2) in said store (10) are fed along said first path (P1), and said blanks (2) are supported by means of

a supporting wall (25) parallel to said blanks (2) and movable along the first path (P1).

11) A method as claimed in Claim 10, wherein said blanks (2) are fed by means of a conveyor (17); said supporting wall (25) being activated by an actuator (24) controlled independently by the conveyor (17).

12) A method as claimed in Claim 8, wherein said supporting wall (25) is activated by an actuator (24) as a function of the pressure exchanged between the supporting wall (25) and the blanks (2) in the store (10).

13) A method as claimed in Claim 7, wherein the supporting wall (25) is moved from a work position in which the supporting wall (25) is located along the first path (P1), to a rest position in which said supporting wall (25) is located alongside said first path (P1).

14) A method as claimed in Claim 13, wherein said supporting wall (25) is set to the rest position when said group (13) of blanks is fed into the unloading station (S2) and exerts a given pressure on said supporting wall (25).

15) A method as claimed in Claim 14, wherein the supporting wall (25) is moved in the first direction (D1) upstream from the group (13) of blanks, while maintaining said supporting wall (25) in the rest position; the supporting wall (25) being moved into the work position; and the supporting wall is brought into contact with the group (13) of blanks.

16) A method as claimed in Claim 1, wherein each stack (5) is transferred from said platform (16) to said container (12) along a plane (PA) and without changing the level of the stack (5).

17) A method as claimed in Claim 16, wherein the stacks (5) on said platform (16) are arranged side by side to form superimposed layers (6); the method comprising moving said platform (16) vertically so that, each time, the top layer (6) lies in said plane (PA).

18) A method as claimed in Claim 16, wherein said container (12) is moved so that a surface supporting the stacks (5) in said container (12) lies in said plane (PA).

19) A method as claimed in Claim 18, wherein said surface supporting the stacks (5) is defined by a wall (39) of said container (12) or by the top blank (2) in the top stack (5) housed in the container (12).

20) A method as claimed in Claim 16, wherein the transfer member (68) of said gripping device (15) is moved along said plane (PA).

21) A method as claimed in Claim 1, wherein transfer from said platform (16) to said container (12) comprises picking up each stack (5) by means of a gripper (64) of a first gripping device (14), and transferring said stack (5) from s0aid gripper (64) to a transfer member (68) of a second gripping device (15); said gripper (64) picking up the stacks (5) off said platform (16); and said transfer member (68) placing the stacks (5) inside said

container (12).

22) A method as claimed in Claim 1, wherein the stacks (5) of blanks on said platform (16) are arranged side by side to form layers (6); each layer (6) being defined by an M number of stacks (5) of blanks; said group (13) being defined by an N number of stacks (5) of blanks; and the M number being a whole multiple of N.

23) A transfer unit for transferring blanks on a packing machine comprising a blank store (10); the transfer unit comprising a platform (16) for supporting a number of blanks (2) divided into stacks (5), and at least one transfer device (14, 15) for transferring said stacks (5) of blanks from the platform (16) to the store (10), wherein the blanks (2) are packed successively and seamlessly and aligned along a first supply path (P1) of a pickup station (S1) of the packing machine (1); and the transfer unit being characterized by comprising a container (12) for housing a group of blanks (2) defined by at least two aligned and superimposed stacks (5), and which is movable along a second path (P2) between a loading station (S3) at said gripping device (14, 15) and an unloading station (S2) at said store (10).

24) A unit as claimed in Claim 23, wherein the blanks (2) in said store (10) and in said container (12) at the unloading station (S2) extend perpendicularly to a first direction (D1), and the blanks (2) on said platform (16) and in said container (12) at the loading station (S3) extend perpendicularly to a second direction (D2)

crosswise to the first direction (D1); the transfer unit (11) comprising a guide (33) parallel to the second path (P2) and for guiding said container (12) and altering the orientation of the container (12) and the group (13) of blanks during transfer along said second path (P2).

25) A unit as claimed in Claim 24, wherein said guide (33) comprises a first portion (34) parallel to the first direction (D1), a second portion (35) parallel to said second direction (D2), and a curved portion (36) connecting the first and second portion (34, 35).

26) A unit as claimed in Claim 25, wherein said loading station (S3) is located along the second portion (35) of the guide, and said unloading station (S2) is located along said first portion (34) of the guide.

27) A unit as claimed in Claim 26, wherein the first and second path (P1, P2) overlap along a portion (T) parallel to the first direction (D1); said unloading station (S2) being located along said portion (T); said first path (P1) being defined by a conveyor (17) with belts (18); and said container (12) being mounted on a carriage (32) insertable between the belts (18) along said portion (T).

28) A unit as claimed in Claim 23, comprising a gripping device (15) for feeding said stacks (5) of blanks to said container (12); the gripping device (15) comprising a transfer member (68).

29) A unit as claimed in Claim 28, comprising a further gripping device (14) for transferring said stacks

(5) of blanks from said platform (16) to the gripping device (15); said further gripping device (14) comprising a gripper (64) for inserting a stack (5) of blanks into said transfer member (68).

30) A unit as claimed in Claim 28, wherein said transfer member (68) comprises a reference system and control members (76, 77) for determining the position of the blanks (2) in each stack (5) in said transfer member (68).

31) A unit as claimed in Claim 30, wherein said reference system comprises two lateral walls (71) maintained parallel to each other by said control members (76, 77), which comprise elastic means (76), and sensors (77) for detecting deformation of the elastic means (76).

32) A unit as claimed in Claim 31, wherein, under the action of said elastic means (76), said lateral walls (71) exert a compression force on the stack (5) of blanks positioned incorrectly in said transfer member (68); said compression force aligning the stack (5) or the blanks (2) with respect to the reference system.

33) A unit as claimed in Claim 31, wherein said gripping device (15) is movable between a receiving position, a transfer position to transfer the stack (5) of blanks to said container (12), and a reject position (E) to reject the stacks (5) of blanks not aligned to the reference system or containing blanks (2) not aligned to the reference system.

34) A unit as claimed in Claim 29, wherein said

gripping device (15) and said further gripping device (14) comprise respective means (76, 63) for moving said transfer member (68) and said gripper (64) along a plane (PA).

35) A unit as claimed in Claim 34, wherein the stacks (5) on said platform (16) are arranged side by side to form superimposed layers (6); said platform (16) comprising a lifting device (62) for moving said platform (16) vertically, and a level sensor (SL) for positioning the top layer (6), each time, in said plane (PA).

36) A unit as claimed in Claim 23, comprising feeding means (51) for positioning said container (12) along said guide (33), and for so positioning the container (12) at the loading station (S3) as to define a surface for supporting the stacks (5) in said container (12) and lying in said plane (PA).

37) A unit as claimed in Claim 36, wherein said container (12) comprises a first wall (39); said surface for supporting the stacks (5) being defined by said first wall (39) when said container (12) is empty; and said surface for supporting the stacks being defined by the top blank (2) in said container (12) when the container (12) is partly filled.

38) A blank store forming part of a packing machine and cooperating with a transfer unit (11) for transferring blanks, as claimed in any one of Claims 23 to 37; characterized by comprising a push device (20) having a supporting wall (25) perpendicular to said first

path (P1) and movable along said first path (P1) to support the blanks (2) in said store (10).

39) A store as claimed in Claim 38, comprising a conveyor (17) on which said blanks (2) are positioned on edge; the push device (20) comprising an actuator (24) for feeding said supporting wall (25) along the first path (P1) independently of said conveyor (17).

40) A store as claimed in Claim 39, wherein said push device (20) comprises detecting means (26, 27, 28) for detecting the pressure exerted on said supporting wall (25) in said first direction (D1); said actuator (24) being controlled as a function of said pressure.

41) A store as claimed in Claim 38, wherein said push device (20) comprises a further actuator (31) for rotating the supporting wall (25) between a work position in which the supporting wall (25) is located along said first path (P1), and a rest position in which said supporting wall (25) is located alongside said first path (P1).